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EXAMINER

AN, SHAWN S

ART UNIT PAPER NUMBER

2613

DATE MAILED: 12/12/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/916,210

Applicant(s)

CHOI ET AL.

Examiner

Shawn S An

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 4-6 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2613

## DETAILED ACTION

### *Claim Objections*

1. Claim 10 is objected to because of the following informalities: On claim 10, line 2, "step (d)" should be changed to "step (c)". Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

3. Claims 1-3 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Martens et al (6,157,677).

**Regarding claims 1 and 9**, Martens et al discloses an object activity modeling method comprising the steps of:

obtaining an optical flow vector from a video sequence (Fig. 2; col. 4, lines 64-67);

obtaining the probability distribution of the feature vector for a plurality of video frames (Fig. 7);

modeling states using the probability distribution of the feature vector (col. 2, lines 45-49); and

Art Unit: 2613

expressing the activity of the object in the video sequence based on state transition (Fig. 8).

**Regarding claim 2**, Martens et al discloses affine motion estimation (col. 36, lines 4-12).

**Regarding claim 3**, Martens et al discloses:

grouping video frames into a plurality of video frame groups and dividing each video frame group as an individual state (abs.);

obtaining an affine motion parameter for each video in the video frame group of each individual state (col. 36, lines 4-12);

obtaining optical flow vector from the affine motion parameters (Fig. 2; col. 4, lines 64-67).

**Regarding claim 10**, Martens et al discloses maximizing probability (Fig. 7), where T is a positive integer indicating the number of frames forming video sequences, wherein  $Z_n$  are feature vectors (col. 2, lines 45-49) of T-th frame, and E = number of state models ( Fig. 8).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2613

5. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martens et al (6,157,677).

**Regarding claim 7**, the Examiner takes official notice that Hidden Markov Model (HMM) is well known in the art for comparing input speech signals with the word models. Therefore, it would have been obvious to a person of ordinary skill to employ HMM for an efficient operator and machine interface.

**Regarding claim 11**, the Examiner takes official notice that an expectation maximization algorithm can be carried out in the statistical learning process. Therefore, it would have been obvious to a person of ordinary skill to employ the expectation maximization algorithm based on the observation symbol probability corresponding to the scene in the training process.

*Allowable Subject Matter*

6. Claims 4-6 and 8 are objected to as being dependent upon a rejected base claim 1, but would be allowable: **if claim 4** is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims; **or if claim 5** is rewritten in independent form including all of the limitations of the base claim 1; **or if claim 6** is rewritten in independent form including all of the limitations of the base claim 1; **or if claim 8** is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims.

Dependent claims 4-6 and 8 recite the novel features.

Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

Art Unit: 2613

*Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.
- A) Chalom et al (6,366,701 B1), Apparatus and method for describing the motion parameters of an object in an image sequence.
  - B) Ratakonda et al (6,285,711 B1), Block-matching based method for estimating motion fields and global affine motion parameters in digital video sequences.
  - C) Altunbasak et al (6,597,816 B1), Correcting distortion in an imaging system using parametric motion estimation.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn An whose telephone number (703) 305-0099 and schedule are Tuesday-Friday.



SHAWN S. AN  
PATENT EXAMINER

SSA

December 10, 2003